

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (currently amended) A nanocomposite optical plastic article, comprising:

a plastic host material having a refractive index $n_{\text{plastic host}}$ and a temperature sensitive optical vector $x = dn_{\text{plastic host}}/dT$;

a core shell nano-sized particulate material having a refractive index $n_{\text{particulate}}$ and having a temperature sensitive optical vector $x_p = dn_{\text{particulate}}/dT$ wherein the temperature sensitive optical vector x_p of the core-shell nano-sized composite particulate is directionally opposed to temperature sensitive optical vector x of the plastic host material is dispersed into said plastic host material, said core-shell nano-sized particulate material having a core material with a refractive index n_{core} and a shell material having a refractive index n_{shell} , wherein the refractive index n_{shell} is lower than the refractive indices of both the host material, $n_{\text{plastic host}}$, and the core material, n_{core} and wherein the optical vector of said plastic host material x and the optical vector of said core-shell nano-sized composite particulate x_p are opposite in sign and additionally the refractive index of said shell material n_{shell} is less than the refractive indices of both said core material n_{core} and said plastic host material $n_{\text{host plastic}}$ material so that $n_{\text{shell}} < n_{\text{plastic host}} < n_{\text{core}}$.

2. (canceled).

3. (previously presented) A nanocomposite optical plastic article as recited in claim 1 wherein said plastic host material is polymethylmethacrylate.

4. (previously presented) A nanocomposite optical plastic article as recited in claim 1 wherein said temperature sensitive optical vector of said shell material $x_{\text{shell}} = dn_{\text{shell}}/dT$ is directionally opposed to said temperature sensitive

optical vector x of said host material wherein said host material is a polymethylmethacrylate host material.

5. (previously presented) A nanocomposite optical plastic article as recited in claim 1 wherein said core material of said core-shell nano-sized composite particulate material is selected from the group consisting of: silica nanoparticles, magnesium oxide nanoparticles, zinc sulfide nanoparticles, zinc selenide, and cadmium sulfide.

6. (previously presented) A nanocomposite optical plastic article as recited in claim 5 wherein said core material of said core-shell nano-sized composite particulate material has a particle size of about 15nm.

7. (previously presented) A nanocomposite optical plastic article as recited in claim 5 wherein said core material of said core-shell nano-sized composite particulate material has a particle size less than about 50nm.

8. (previously presented) A nanocomposite optical plastic article as recited in claim 5 wherein core material of said core-shell nano-sized composite particulate material has a particle size less than about 20 nm.

9. (canceled).

10. (currently amended) A nanocomposite optical plastic article as recited in claim 9 wherein said ~~eated~~ coating layer is selected from the group consisting of: amorphous silica, fluropolymer, magnesium fluoride, and silsequinoxane materials.

11. (currently amended) A nanocomposite optical plastic article as recited in claim 1 wherein said shell material further comprises a ~~eated~~ coating layer of silica.

12. (currently amended) A nanocomposite optical plastic article as recited in claim 11 wherein said core material of said core-shell nano-sized

composite particulate material further comprises a core material with a ~~coated~~
shell having a thickness in the range of about 5nm to about 17nm.

13. (currently amended) A nanocomposite optical plastic article
as recited in claim 1 ~~wherein said core material of said core-shell nano-sized~~
~~composite particulate material~~ wherein said shell further comprises a magnesium
fluoride coating layer.

14. (previously presented) A nanocomposite optical plastic article
as recited in claim 1 wherein said core material of core material of said core-shell
nano-sized composite particulate material further comprises a material selected
from the group consisting of: potassium titano phosphate, aluminum oxide,
magnesium aluminate, yttrium oxide, and calcium carbonate.

15. (canceled).

16. (canceled).

17. (canceled).

18. (canceled).

19. (canceled).